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EXAMINER
YANG, CLARA I

ART UNIT	PAPER NUMBER
2635	8

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/640,552	ILG, JOHANNES	
	Examiner	Art Unit	
	Clara Yang	2635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12 and 13* is/are allowed.

6)☒ Claim(s) *1-11 and 14-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *04 June 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 4 June 2003, have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Allowable Subject Matter

2. Claims 12 and 13 allowed.

Response to Arguments

3. Applicant's arguments filed 4 June 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "...both the signals emitted by the vehicle and...key are encoded with the time information" and "In any event, neither Wood nor Waraksa show encoding by means of time information, as required in the present invention" on page 12.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Nevertheless, Waraksa does teach beacon/transmitter 24 transmitting a CLOCK code, which is understood to be time information, along with each transmission in order for the vehicle receiver/controller to resynchronize its receiver clock (see Col. 10, lines 34 - 49).

In response to applicant's argument that the combination of Wood and Waraksa is "improper inasmuch as Wood involves a bi-directional system while Waraksa involves a

unidirectional system" (see page 12), both Wood, who discloses a device 12 that can be used to impede car theft (see Col. 19, lines 53 - 64) and Waraksa teach keyless entry systems for vehicles. Wood states that interrogator 26, which is in the vehicle, can periodically automatically change values, such as a password in device 12 (see Col. 19, lines 61 - 64). Waraksa, though teaching a unidirectional system, imparts an improved method of changing beacon/transmitter 24's coded signal to prevent theft.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 1 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963 in view of Waraksa et al. U.S. Patent No. 5,412,379, and further in view of MacLellan et al. U.S. Patent No. 6,130,623.

Referring to Claim 1, Wood, Jr. teaches a device for identifying authentic information and enabling an action, the device comprising: (a) key unit (hereinafter referred to as "device 12") for transmitting information to a base unit and a base unit (hereinafter referred to as "interrogator 26") for detecting the information sent by a key unit, comparing it with predetermined information, and enabling the action when the detected information matches the predetermined information (see Fig. 4, device 12 and interrogator 26; Col. 1, lines 64 - 67; Col. 2, lines 1 - 4; and Col. 19, lines 53 - 64; (b) interrogator 26 and device 12 each having a digital generator (see Col. 13, lines 37 - 67 and Col. 14, lines 1 - 65); (c) device 12 combining the digital

information of its digital generator with a stored identification code in accordance with a predetermined coding rule to form a coded information item (see Col. 5, lines 19 - 23 and Col. 15, lines 4 - 35); (d) interrogator 26 enabling the action when the coded information item received from device 12 matches the predetermined information item (see Col. 15, lines 30 - 35 and Col. 19, lines 53 - 64); (e) interrogator 26 transmitting a radio frequency (RF) carrier signal (see Col. 4, lines 57 - 59); (f) device 12 including a controllable electronic switch switching an antenna between essentially matched and mismatched states in accordance with the coded information item, and the antenna reflecting the received RF carrier signal in accordance with the digital coded information (see Col. 14, lines 42 - 65); and (g) interrogator 26 receiving and evaluating the reflected signal (see Col. 5, lines 13 - 23 and Col. 19, lines 53 - 64). Wood fails to teach: (1) interrogator 26 and device 12 both having accurately-timed digital generators running essentially synchronously with respect to one another and generating digital output information that changes at predetermined time intervals; and (2) interrogator 26 using the predetermined coding rule to code the predetermined information with the digital information of its digital generator to form a predetermined coded information item and comparing the predetermined coded information item with the coded information item communicated by device 12.

In an analogous art, Waraksa imparts a receiver/controller 100 or base unit and a beacon/transmitter 24 or key unit, wherein the transmitted signal between the beacon and receiver is continuously changing in order to deter theft (see Abstract). Receiver/controller 100 has a quartz crystal 110 (see Fig. 13a), and beacon/transmitter 24 has a quartz crystal 46 (see Fig. 5) for ensuring that the digital generators of both devices are running essentially synchronously with respect to each other and generating CLOCK code or digital output

information that changes approximately every 5 seconds (see Col. 2, lines 38 - 43; Col. 8, lines 46 - 52; and Col. 13, lines 61 - 67).

In another analogous art, MacLellan's base unit, which is understood to be formed by an application processor and interrogator as shown in Fig. 4, receives a tag's identification (ID) at 402. The interrogator then sends a random challenge (or digital information) generated by its random number generator (or digital generator) to the application processor at 403 and to the tag at 404. The application processor forms a response or predetermined coded information item at 405 using the encryption/encoding information associated with the tag's ID information while the tag also forms a response. The interrogator receives the responses from the application processor and tag at 407 and 408 respectively, compares the responses, determines if there is a match, and notifying the application processor and tag whether the transaction is accepted or rejected at 409 and 410.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wood, Jr. as taught by Waraksa because a code that is continuously changed at predetermined intervals deters theft.

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wood, Jr. as taught by MacLellan because having interrogator 26 and device 12 both generate simultaneously the predetermined coded information item and then having interrogator 26 comparing both coded information items eliminate the need to decode the received coded information prior to the comparison, thus reducing verification time.

Regarding Claim 11, Wood's device 12 includes: (a) microcontroller 34 or central evaluating and control unit for controlling transmitter 32 and receiver 30 (see Fig. 5; Col. 12,

lines 62 - 67; and Col.13, lines 1 - 11); and (b) an identification code memory located in microcontroller 34 (see Col. 5, lines 19 - 23; Col. 13, lines 1 - 11; and Col. 19, lines 61 - 64). Wood, however, omits teaching that device 12 has a ring-connected shift register that is loaded at predetermined time intervals with a different coded information item generated by the coding unit using the digital information from the digital generator and contents of the identification code memory and that the shift register cyclically reads out the different coded information.

Waraksa teaches a method for generating a changing or rolling beacon code (see Fig. 9; Col. 10, lines 62 - 68; Col. 11, lines 1 - 31 and 59 - 68; and Col. 12, lines 1 - 8). Because the clock code is changed every 5 seconds (see Col. 8, lines 46 - 52), it is understood that error correction code (ECC) encoder 60 is a ring-connected shift register that is loaded every 5 seconds using transformation coded created from the clock code generated by clock 57 (or digital generator) and the 20-bit identification stored in register 63.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify device 12 of Wood as taught by Waraksa because a code that is continuously changed at predetermined intervals deters theft.

6. Claims 2, 4 - 6, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963, Waraksa et al. U.S. Patent No. 5,412,379, and MacLellan et al. U.S. Patent No. 6,130,623 as applied to claim 1 above, and further in view of Greeff et al. U.S. Patent No. 6,169,474.

Regarding Claims 2 and 10, interrogator 26 of Wood, Jr., Waraksa, and MacLellan includes: (a) a central evaluating and control unit formed by host computer 48 (see Wood, Fig. 4; Col. 4, lines 64 - 67; Col. 5, lines 1 - 6 and 13 - 16; and Col. 8, lines 12 - 14); and (b) an RF

generator (see Wood, Col. 4, lines 57 - 59 and Col. 8, lines 45 - 57). Because the interrogation signal transmitted by interrogator 26 contains data (see Wood, Col. 13, lines 37 - 67 and Col. 14, lines 1 - 40), it is inherent that interrogator 26 has a modulator between the RF generator and the antenna. Wood, Jr., Waraksa, and MacLellan, however, fail to teach that the RF generator is connected to an antenna by a power amplifier.

In an analogous art, the RF circuitry of Greeff's interrogator 26, as shown in Fig. 7, includes a power amplifier 19 for amplifying the interrogation signal (see Col. 9, lines 8 -10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the interrogator 26 of Wood, Jr., Waraksa, and MacLellan as taught by Greeff because a power amplifier minimizes signal losses and improves efficiency.

Regarding Claim 4, as shown in Fig. 4, Wood's interrogator 26 uses only one antenna to transmit and receive signals. Because the use of circulators is well known to those of ordinary skill in the art, it is understood that interrogator 26's transmitter and receiver are connected to antenna 28 via a circulator.

Regarding Claim 5, Wood teaches that interrogator 26 is able to send commands to device 12 to change the modulation scheme (see Col. 10, lines 43 - 51). Because interrogator 26 is able to receive device 12's modulated backscatter reflections and determine if device 12's identification is valid (see Col. 19, lines 53 - 64), it is inherent that interrogator 26's receiving circuit has a demodulator that receives essentially all the received signal's power and supplies the demodulated signal to host computer 48.

Regarding Claim 6, Wood, Jr., Waraksa, and MacLellan fail teach that device 12's return link is differential phase shift key (DPSK) modulated onto a square wave subcarrier (see Wood, Jr., Col. 14, lines 52 - 54) but fail to impart that interrogator 26's demodulator is supplied with

the carrier signal of the RF generator and correlates the carrier signal with the signal received by the antenna for the purpose of demodulation.

Greeff's interrogator 26, as shown in Fig. 7, comprises a frequency synthesizer 75, power divider 73, and quadrature down-converter 84. Upon receiving a signal at antenna R1, low noise amplifier (LNA) 82 amplifies the signal, and quadrature down-converter 84 coherently downconverts the received signal using output from frequency synthesizer 75, which supplies the carrier frequency (see Col. 8, lines 59 - 60 and Col. 9, lines 18 - 27). After setting the amplitude of down-converter 84's outputs, the resulting I and Q signals are passed on to the DPSK circuitry 52 for demodulation. Here it is understood that down-converter 84, automatic gain controls 86 and 88, and DPSK circuitry 52 form a demodulator.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the interrogator 26 of Wood, Jr., Waraksa, and MacLellan as taught by Greeff because it is necessary to correlate with carrier signal with the backscattered or reflected return link or received signal in order to isolate the DPSK modulated subcarrier.

Regarding Claim 17, Wood, Jr., Waraksa, and MacLellan are silent on using a multiplier as a modulator. However, the Examiner takes Official Notice that the use of a multiplier as a modulator is a well known. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to the modulator of Wood, Jr., Waraksa, and MacLellan is a multiplier since the Examiner takes Official Notice that the use of a multiplier as a modulator is a well known and eliminates the need for mechanical switches.

7. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963, Waraksa et al. U.S. Patent No. 5,412,379, MacLellan et al. U.S. Patent

No. 6,130,623, and Greeff et al. U.S. Patent No. 6,169,474 as applied to claim 2 above, and further in view of Schrader et al. U.S. Patent No. 3,750,168.

Regarding Claims 3 and 9, Wood, Jr., Waraksa, MacLellan, and Greeff fail to teach that interrogator 26's RF carrier signal is frequency modulated with a triangular function and that interrogator 26's evaluating and control unit of a base unit is able to separate a number of superimposed signals from a plurality of device 12 at different distances by evaluating a displacement spectra due to the different distances from the base unit and evaluating collisions of the received information items.

In an analogous art, Schrader teaches a base unit located in an aircraft that is able to receive many reply signals from transponders located on intruding aircrafts and is able to distinguish the signal from the most hazardous intruding aircraft from the other signals (see Abstract). Per Schrader, the reply signals are frequency modulated using a triangular function (see Col. 2, lines 66 - 67; Col. 3, lines 1 - 7 and 23 - 26; and Col. 7, lines 17 - 21). Upon receiving the reply signals, receiver 23 of the base unit, which is understood to be the evaluating and control unit (see Col. 3, lines 59 - 66), separates a number of superimposed signals from a plurality of transponders at different distances by evaluating a displacement spectra due to the difference distances from the base unit and evaluating collisions of the received reply signals (see Col. 3, lines 35 - 68 and Col. 4, lines 1 - 7).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify interrogator 26 of Wood, Jr., Waraksa, MacLellan, and Greeff as taught by Schrader because using a triangular function to frequency modulate the carrier frequency enables interrogator 26 to determine the location of device 12 and to recognize device

12's response in the event that a plurality of responses are received simultaneously, thus enhancing the functionality of the system.

8. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963, Waraksa et al. U.S. Patent No. 5,412,379, MacLellan et al. U.S. Patent No. 6,130,623, and Greeff et al. U.S. Patent No. 6,169,474 as applied to claim 2 above, and further in view of LeMense U.S. Patent No. 5,710,548.

Regarding Claims 7 and 8, host computer 48 of Wood, Jr., Waraksa, MacLellan, and Greeff is unable to determine the distance between interrogator 26 and device 12 from the output signal from the demodulator unit.

In an analogous art, LeMense's transmitter direction identifier 10 or base unit comprises a first antenna 46, a second antenna 48, spatial differentiator 30, and control unit 32. Here it is understood that spatial differentiator 30, and control unit 32 form an evaluating and control unit. Per LeMense, antenna 46 and antenna 48 receive a coded signal from transmitter 18 or key unit, and spatial differentiator 30 creates a location signal from the coded signal (see Col. 2, lines 36 - 41 and Col. 3, lines 1 - 6). Because transmitter 18's signal is coded, implying that the signal is modulated, it is understood that receiver 20 has a demodulator. LeMense further teaches that the signals received at each antenna are individually analyzed and that the antenna with the highest correlation coefficient is selected to receive the remaining pulses from transmitter 18 (see Col. 4, lines 30 - 58). Microprocessor 58 is able to determine transmitter 18's proximity (or distance) and whether transmitter 18 is located on the driver side or passenger side (see Col. 3, lines 45 - 49 and Col. 4, lines 47 - 51). LeMense also states that two additional antennas can be used to further delineate the location of transmitter 18 (see Col. 4, lines 55 - 58).

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963, Waraksa et al. U.S. Patent No. 5,412,379, and MacLellan et al. U.S. Patent No. 6,130,623 as applied to claim 1 above, and further in view of Knebelkamp U.S. Patent No. 5,461,386.

Wood, Jr., Waraksa, and MacLellan teach an interrogator 26 that transmits an RF carrier signal but omit expressing that the interrogation signal is transmitted continuously.

In an analogous art, Knebelkamp's interrogator 12 transmits an interrogation signal either continuously or selectively (see Col. 7, lines 10 - 13).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify interrogator 26 of Wood, Jr., Waraksa, and MacLellan as taught by Knebelkamp because continuous transmission of an interrogation signal ensures that device 12 is immediately detected when it is within rang and that ID verification can begin promptly.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963, Waraksa et al. U.S. Patent No. 5,412,379, and MacLellan et al. U.S. Patent No. 6,130,623 as applied to claim 1 above, and further in view of Lambropoulos U.S. Patent No. 5,838,257.

Wood, Jr., Waraksa, and MacLellan teach an interrogator 26 that transmits an RF carrier signal but omit expressing that the interrogation signal is transmitted at predetermined time intervals.

In an analogous art, Lambropoulos's vehicle transceiver C or base unit periodically transmits an interrogation signal (see Col. 2, lines 1 - 5 and 65 - 67; and Col. 4, lines 5 - 8).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify interrogator 26 of Wood, Jr., Waraksa, and MacLellan as taught by Lambropoulos because periodic transmission of an interrogation signal reduces power consumption at the base unit.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Jr. U.S. Patent No. 6,265,963, Waraksa et al. U.S. Patent No. 5,412,379, and MacLellan et al. U.S. Patent No. 6,130,623 as applied to claim 1 above, and further in view of Kurozu et al. U.S. Patent No. 5,157,389.

Wood, Jr., Waraksa, and MacLellan teach an interrogator 26 that transmits an RF carrier signal but omit expressing that the interrogation signal is transmitted following a request signal.

In an analogous art, Kurozu's control unit 29 or base unit transmits an interrogation signal after door request switch (DRS) has been switched on (see Col. 5, lines 21 - 26). Here it is understood that the door request switch sends a request signal to control unit 29.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify interrogator 26 of Wood, Jr., Waraksa, and MacLellan as taught by Kurozu because only transmitting an interrogation signal after receiving a request signal prevents unnecessary transmissions of the interrogation signal, thus conserving energy at the base unit.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clara Yang whose telephone number is (703) 305-4086. The examiner can normally be reached on 8:30 AM - 7:00 PM, Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (703) 305-4704. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9315 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

BRIAN ZIMMERMAN
PRIMARY EXAMINER

CY
August 6, 2003